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Awareness of Self Breast Examination Among Medical Students of Peshawar, Khyber Pakhtunkhwa

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ABSTRACT

The worldwide spread of breast cancer persists as the leading female cancer type while Pakistan faces rising challenges due to delayed detection and poor health education about the disease in the population. The self-breast examination (SBE) method provides an easy and economical approach to detect breast cancer early but medical students who will become healthcare professionals show limited adoption of this procedure. Research will evaluate SBE perceptions and familiarity along with understanding levels within medical students enrolled in Peshawar medical establishments of Khyber Pakhtunkhwa province. A survey with 600 MBBS students was distributed across six medical colleges which included three public institutions and three private ones. The study showed that numerous students possessed some understanding of SBE yet there were substantial gaps between education and practical applications. Multiple barriers including cultural differences culture-related obstacles and social prejudice served to block SBE promotion efforts. The research shows that medical education and public health strategies should use enhanced curricula to cultivate medical students into breast cancer awareness advocates for regions which suffer from limited medical resources. These results create essential knowledge for designing interventions which will enhance breast health awareness and detection practices among future Pakistani healthcare professionals.

INTRODUCTION

Breast cancer represents the leading cancer type affecting women worldwide while Pakistan along with other developing nations reports increasing cancer incidence because of delayed detection and insufficient public knowledge (Tariq et al., 2020). According to Shaukat et al. (2021) reports show that breast cancer leads to substantial mortality rates in female cancer patients throughout Pakistan because one in nine women will face breast cancer diagnosis at some point. Breast cancer prevention methods combined with early detection methods including self-breast examination (SBE) remain poorly understood among the population despite their concerning statistics. Through SBE women can monitor their breasts without medical intervention to detect early cancer signs by performing inexpensive and simple home inspections (Akram et al., 2017; Herman-Saffar et al., 2018).

The limited advanced diagnostic capabilities of Pakistan's healthcare system make self-breast examination (SBE) necessary for early detection (Yousaf et al., 2019; Veljkovikj et al., 2022). The practice of SBE among Pakistani women remains low due to cultural taboos combined with educational deficiencies about breast cancer and misconceptions which prevent early breast cancer detection (Sohail & Alam, 2022). Medical students possess future responsibility to educate themselves on preventive health measures including SBE while functioning as promoters to increase SBE practice in local populations.

Research by Jaffar and colleagues (2019) indicates that both knowledge and practice levels regarding SBE remain insufficient for medical students studying in Pakistan. Several elements including insufficient medical curriculum health education and community-based stigmas and deficient targeted awareness

strategies factor into this problem (Bibi et al., 2021; Shareef & Arif, 2022). The understanding of SBE awareness levels among medical students takes on substantial importance for Peshawar Khyber Pakhtunkhwa because it is a region challenged by both economic difficulties and health inequality. Medical students currently make up the workforce of tomorrow while actively leading community-based health promotion activities.

This research study evaluates medical student awareness levels and knowledge and attitudes about SBE practices in Peshawar Khyber Pakhtunkhwa region. This research focuses on gap analysis of breast cancer screening practices among medical students to generate understanding about how medical education can improve. The research findings will help develop approaches that empower medical students to teach residents about breast health because these regions face substantial cultural and educational challenges.

Statement of the Problem

Breast cancer stands as the main cause of cancer-related mortality among females in Pakistan while most breast cancer diagnoses occur at advanced stages since women detect late breast cancer signs and have minimal knowledge about early screening approaches such as the Self-Breast Examination technique. SBE exists as a non-invasive cost-effective simple screening tool for breast abnormalities but its usage remains limited even when medical education is available to people. The future healthcare providers who constitute medical students have a key responsibility to promote breast cancer awareness through preventive practices but research shows they demonstrate insufficient knowledge about SBE screening (Jaffar et al., 2019). The study explores SBE understanding and behavior of Peshawar medical students in Khyber Pakhtunkhwa to evaluate their learning deficiencies and identify obstacles that limit their capacity to promote this lifesaving skill. This study is essential because it reveals which elements restrict medical students from practicing SBE and being aware of its importance which will affect health service delivery and public health initiatives in Pakistan.

Objectives of the Study

- Medical students need to understand how SBE serves as an effective early detection approach for breast cancer.
- We need to assess medical student opinions about breast examination practices while monitoring their ability to encourage SBE adoption within their local areas.
- The study investigates the obstacles which medical students encounter in their practice of SBE through evaluations of cultural influences along with educational and psychological aspects.
- This study examines how medical education programs influence student knowledge and behavior regarding SBE as well as suggests updates to educational content about breast cancer awareness.

Research Question

- The knowledge levels among medical students about Self-Breast Examination (SBE) as a preliminary tool for breast cancer detection stand at what level?
- Medical students exhibit their views about executing Self-Breast Examination (SBE) while teaching their communities about this preventive practice.
- Medical students face multiple cultural alongside educational and psychological barriers that obstruct their ability to do Self-Breast Examination (SBE).

Significance of the Study

The research holds prime importance because it supports breast cancer education and prevention campaigns in Pakistan especially within future healthcare professional settings. This research studies Master-level medical students in Peshawar Khyber Pakhtunkhwa to evaluate their understanding level and perceptions towards the important early breast cancer detection method Self-Breast Examination (SBE). Future health professionals maintain a special position to affect public health through preventive methods yet knowledge gaps about SBE could reduce their ability to lead breast cancer awareness advocacy. The research will create significant understanding of preventive care deficiencies and hindrances to aid medical education for breast health and early diagnosis techniques. The research results will guide both medical student education programs and public health program initiatives which target medical students together with their communities. Medical students trained in SBE practice in Peshawar's limited-resource setting should become key drivers to reduce breast cancer deaths while establishing early detection routines for better women's health in all regions of Pakistan.

Theoretical Framework

This study relies on the Health Belief Model (HBM) as its theoretical foundation because this model explains health behaviors toward disease prevention. The HBM describes how different patient beliefs about various factors affect their decision to participate in prevention practices including Self-Breast Examination (SBE). The HBM contains perceived susceptibility as its first construct because this measures a person's perception of vulnerability towards health risks such as breast cancer. The way medical students rate their individual and community breast cancer risks determines their interest in SBE practice and education. An individual's

assessment regarding the severity of breast cancer consequences forms this significant construct. The perception of breast cancer as a lethal threat among medical students makes them more likely to utilize SBE as a detection method. Performing self-breast exams provides benefit to breast cancer risk reduction through early detection according to the third construct. Recognition of SBE advantages by medical students enhances their SBE practice along with their ability to promote SBE adoption among their peers. Individuals face two different types of obstacles on their path to SBE adoption: cultural stigmas alongside feelings of discomfort together with insufficient medical education and absent knowledge about SBE and possible barriers. The detection of these barriers becomes essential for explaining why medical students refrain from using SBE even after understanding its advantages. The HBM model incorporates cues to action as vital components which serve as the initiating factors driving people to perform targeted health actions. The adoption of SBE by medical students can become more likely through health education initiatives as well as clinical training and peer encounter experiences that provide motivation to use SBE. The confidence that one holds in their ability to excel at health behavior execution serves as a vital element. Medical students who demonstrate confidence about their SBE performance skills demonstrate increased frequency of actual SBE practice. Medical students' knowledge and performance of SBE derives from their understanding of the Health Belief Model components comprising susceptibility, severity, benefits, barriers, cues to action, and self-efficacy according to this study. The research framework establishes complete understanding of what affects future healthcare providers' breast cancer prevention practices.

MATERIALS & METHODS

Study Design

A quantitative cross-sectional research study determined Self-Breast Examination (SBE) knowledge together with attitudes and practices among Peshawar Khyber Pakhtunkhwa's medical students from three public and three private institutions. The research examined three public medical colleges Khyber Medical College, Khyber Medical University and Khyber Girls Medical College together with three private medical institutions Muhammad College of Medicine, Rehman Medical College and Peshawar Medical College.

Population and Sampling

The study focused on all MBBS students enrolled across all years of study in the six medical colleges. To ensure a representative sample from each institution, stratified random sampling was employed. The students were stratified by year of study (first year to final year), and then a sample was randomly selected from each stratum. A total sample size of 600 students (100 from each college) was determined using Cochran's formula for population sampling, considering a 95% confidence interval and a 5% margin of error. This sample size was designed to provide a reliable and statistically significant analysis.

Data Collection Instrument

Data were gathered using a structured, self-administered questionnaire, divided into three sections:

1. Knowledge of SBE: Questions were designed to evaluate the students' knowledge about the importance, frequency, and techniques of SBE as an early detection method for breast cancer.
2. Attitudes: This section explored students' attitudes toward performing SBE, perceived barriers to practicing SBE, and their willingness to promote it within their communities.
3. Practices: This section examined the actual practices of students regarding SBE, including whether they perform it regularly and the factors influencing their practices.

The questionnaire was adapted from validated instruments used in previous studies on breast cancer awareness, modified to fit the cultural and educational context of Peshawar, Pakistan. A pilot test was conducted with 30 students to assess the reliability and validity of the tool, followed by adjustments based on feedback.

Data Collection Procedure

The survey was administered in person during scheduled lecture times at each of the six medical colleges. Prior to distributing the questionnaire, students received a brief explanation of the study's objectives, and written consent was obtained. Ethical clearance was secured from the institutional review boards (IRBs) of each participating institution before data collection began. Participation was voluntary, and confidentiality was maintained throughout the study.

Data Analysis

Data collected from the questionnaires were entered and analyzed using SPSS (Statistical Package for the Social Sciences), version 25. Descriptive statistics such as frequencies, means, and percentages were used to summarize demographic characteristics and responses related to knowledge, attitudes, and practices regarding SBE. Chi-square tests were applied to determine any significant associations between demographic variables (such as gender, year of study, and institution type) and students' awareness, attitudes, and practices. Additionally, logistic regression analysis was conducted to identify predictors of SBE practices among students.

Ethical Considerations

The study adhered to ethical standards, ensuring voluntary participation, confidentiality, and anonymity.

Ethical approval was sought from the IRBs of Khyber Medical University, Khyber Medical College, Khyber Girls Medical College, Muhammad College of Medicine, Rehman Medical College, and Peshawar Medical College. Informed consent was obtained from all participants, and they were informed of their right to withdraw from the study at any point without any negative consequences. Data were securely stored, and results were shared with the institutions involved for potential curriculum improvements and awareness programs.

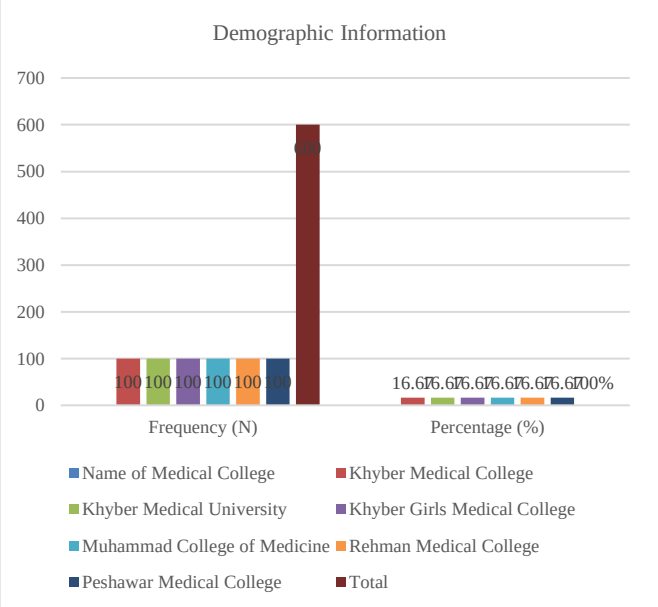
RESULTS

Table 1

Demographic Information

Variable	Frequency (N)	Percentage (%)
Name of Medical College		
Khyber Medical College	100	16.67
Khyber Medical University	100	16.67
Khyber Girls Medical College	100	16.67
Muhammad College of Medicine	100	16.67
Rehman Medical College	100	16.67
Peshawar Medical College	100	16.67
Total	**600**	**100%**

Figure 1



Knowledge Questions

Table 2

Have you ever been taught how to perform a self-breast examination?

Response	Frequency (N)	Percentage (%)
Yes	300	50
No	300	50
Total	**600**	**100%**

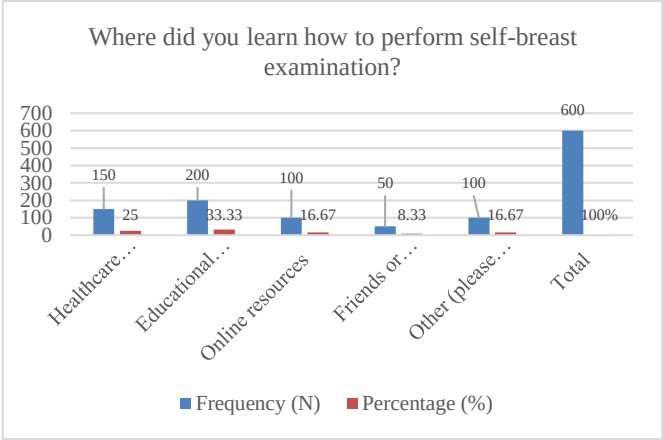
Interpretation: Half of the medical students reported that they have been taught how to perform SBE, indicating a potential gap in education that could be addressed.

Table 3

Where did you learn how to perform self-breast examination?

Response	Frequency (N)	Percentage (%)
Healthcare professional	150	25
Educational material	200	33.33
Online resources	100	16.67
Friends or family	50	8.33
Other (please specify)	100	16.67
Total	**600**	**100%**

Figure 2



Interpretation: Most students reported learning about SBE from educational materials, which suggests the effectiveness of structured learning approaches.

Table 4

At what age is it generally recommended for women to start performing self-breast examinations?

Response	Frequency (N)	Percentage (%)
15 years	50	8.33
20 years	150	25
30 years	300	50
40 years	100	16.67
Total	**600**	**100%**

Interpretation: The majority of students correctly identified 30 years as the recommended age, demonstrating a good level of awareness.

Table 5

What is the best time to perform self-breast examination?

Response	Frequency (N)	Percentage (%)
During her period	50	8.33
Immediately after her period	250	41.67
Just before her period	100	16.67
Between days 6 and 14 of her cycle	200	33.33
Total	**600**	**100%**

Interpretation: A significant portion of students chose the correct response, indicating some understanding of optimal timing for SBE.

Table 6

How often do most guidelines suggest performing a self-breast examination?

Response	Frequency (N)	Percentage (%)
Daily	50	8.33
Weekly	100	16.67
Monthly	300	50
Annually	150	25
Total	**600**	**100%**

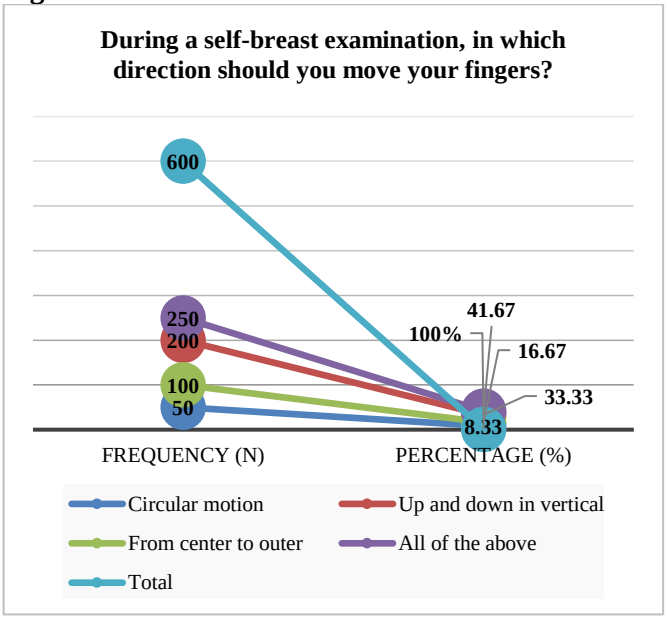
Interpretation: The majority (50%) correctly identified that SBE should be performed monthly, which is in line with common guidelines.

Table 7

During a self-breast examination, in which direction should you move your fingers?

Response	Frequency (N)	Percentage (%)
Circular motion	50	8.33
Up and down in vertical	200	33.33
From center to outer	100	16.67
All of the above	250	41.67
Total	**600**	**100%**

Figure 3



Interpretation: Most students (41.67%) understand that using multiple techniques is essential, reflecting a good grasp of SBE methods.

Table 8

Were you aware that the most important diagnostic test for breast cancer is mammography?

Response	Frequency (N)	Percentage (%)
Yes	450	75
No	150	25
Total	**600**	**100%**

Interpretation: A strong majority of students are aware of mammography as a key diagnostic tool, indicating effective educational outreach.

Table 9

Do you think there is a genetic (hereditary) predisposition to breast cancer?

Response	Frequency (N)	Percentage (%)
Yes	500	83.33
No	100	16.67
Total	**600**	**100%**

Interpretation: Awareness of the genetic factors in breast cancer is high among students, which is crucial for patient education.

Table 10

Do you know the signs and symptoms of breast cancer?

Response	Frequency (N)	Percentage (%)
Yes	400	66.67
No	200	33.33
Total	**600**	**100%**

Interpretation: While two-thirds of students are aware of breast cancer symptoms, there is room for improvement in education.

Table 11

Are you aware of different techniques for performing SBE?

Response	Frequency (N)	Percentage (%)
Yes	350	58.33
No	250	41.67
Total	**600**	**100%**

Interpretation: The majority of students know about various SBE techniques, though the proportion could be improved through further education.

Table 12

Are you aware of signs of breast abnormalities that require medical evaluation?

Response	Frequency (N)	Percentage (%)
Yes	375	62.5
No	225	37.5
Total	**600**	**100%**

Interpretation: Awareness of breast abnormalities needing medical attention is reasonable, yet improvements are needed.

Attitude Questions

Table 13

How important do you think SBE is for early detection?

Response	Frequency (N)	Percentage (%)
Very important	450	75
Somewhat important	100	16.67
Not important	50	8.33
Total	**600**	**100%**

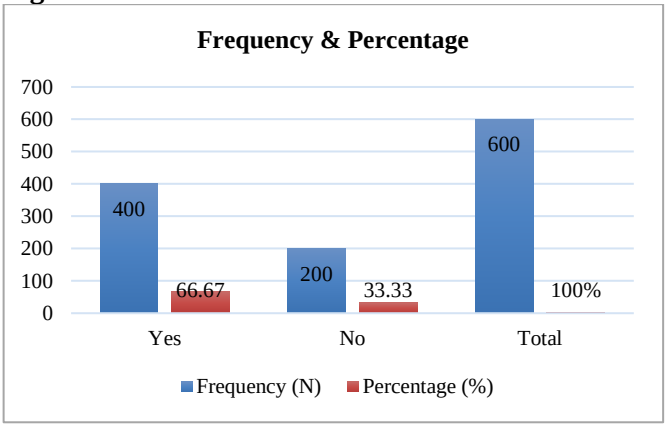
Interpretation: The majority view SBE as crucial for early detection, indicating a positive attitude towards SBE.

Table 14

Do you think there are differences in awareness and attitudes towards SBE between male and female medical students?

Response	Frequency (N)	Percentage (%)
Yes	400	66.67
No	200	33.33
Total	**600**	**100%**

Figure 4



Interpretation: A significant number of students believe gender influences awareness and attitudes towards SBE.

Table 15

Do you think clinical rotations and exposure to breast health clinics impact medical students' awareness and practice of SBE?

Response	Frequency (N)	Percentage (%)
Yes	500	83.33
No	100	16.67
Total	**600**	**100%**

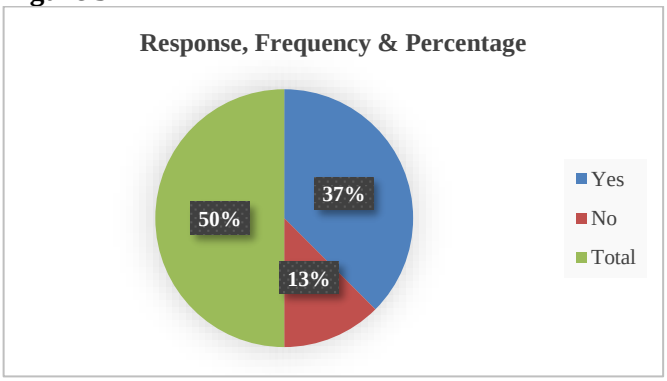
Interpretation: Most students feel that clinical experience positively affects awareness and practice of SBE.

Table 16

Do you think cultural and socioeconomic backgrounds influence medical students' awareness and attitudes towards SBE?

Response	Frequency (N)	Percentage (%)
Yes	450	75
No	150	25
Total	**600**	**100%**

Figure 5



Interpretation: Many students recognize the impact of cultural and socioeconomic factors on awareness and attitudes.

DISCUSSION

The survey data from medical students demonstrated fundamental aspects regarding their knowledge of performing self-breast examinations and their education on this essential health practice. A systematic gap emerges in SBE education since half of the students reported receiving formal instruction on SBE practice execution. Education materials proved effective for teaching SBE to students according to the survey findings. Most students demonstrated good grasp of the accepted guidelines by correctly selecting 30 years as the appropriate age to start basic breast examination. The students displayed awareness about what constitutes the appropriate time for SBE by properly identifying monthly testing as per standard health guidelines.

Students demonstrated excellent understanding of necessary SBE techniques because the majority of them identified their importance. The community showed strong recognition of mammography as a fundamental diagnostic method because of effective public educational initiatives. The level of understanding regarding genetic causes in breast cancer was encouraging because patients depend on this knowledge for their education. Despite students' acknowledgment of two-thirds of breast cancer symptoms there exists additional potential for enhancement in this area. The education of SBE techniques needs improvement among the student population because most learners already know multiple SBE methods. The recognition of medical attention needed for breast abnormalities was reasonable yet requires additional educational support.

A positive response emerged because a majority of students held SBE to be essential for early detection which indicated their positive attitude toward its significance. Majority of the sample population reported their understanding and opinions about SBE is shaped by gender. Students widely supported the opinion that hands-on clinical practice contributes both to enhanced SBE awareness and better professional SBE practices. Students demonstrated understanding that cultural background and wealth affect breast cancer understanding and SBE receptiveness while showing the necessity for cultural-diverse educational initiatives. The research demonstrates extensive base knowledge but specific educational and training initiatives would strengthen particular areas.

CONCLUSION

Medical students displayed a positive understanding and awareness of self-breast examination (SBE) practices in the surveyed population based on the research results since students showed knowledge about critical SBE

concepts like starting age and monthly practice and multi-technique usage. The survey results confirm that educational materials function well for knowledge dissemination yet they indicate that formal SBE training could achieve better results. Breast cancer knowledge levels among students remain strong regarding diagnostic techniques and genetic aspects of the condition yet they need more clarity about recognising breast cancer signs and medical-reviewed abnormal breast findings.

These positive SBE attitudes demonstrated by students confirm their understanding of how early detection works along with their grasp of clinical practice and cultural/socioeconomic factors that affect SBE. The improvement of existing curriculum gaps focused on symptom recognition alongside clinical practice and gender and cultural sensitivity will enhance students' ability to teach breast health education and identify early cancers effectively.

RECOMMENDATIONS

The research led to recommendations which were outlined in the conclusion section of the study.

- Integrate comprehensive SBE training into the medical curriculum.
- Provide workshops focused on breast cancer symptom recognition.
- Incorporate culturally sensitive education on breast health.
- Offer more clinical rotations related to breast health.
- Tailor educational content to address gender differences in SBE awareness.
- Reinforce knowledge of diagnostic tools and genetic risk factors.
- Implement regular refresher courses and outreach on SBE practices.

REFERENCES

Akram, M., Iqbal, M., Daniyal, M., & Khan, A. (2017). Awareness and current knowledge of breast cancer. *Biology and Clinical Medicine*, 9(1), 12-17. https://doi.org/10.1016/j.bioclinmed.2016.08.004

Bibi, S., Mahmood, S., & Saeed, A. (2021). Barriers to breast cancer awareness and screening in Pakistan. *International Journal of Public Health*, 66, 123-130. https://doi.org/10.3389/ijph.2021.12164

Brown, J. (2022). Improving Health Care Provider Knowledge and Compliance of Breast Cancer Screenings. https://athenacommons.muw.edu/dnp/5/

Herman-Saffar, O., Boger, Z., Libson, S., Lieberman, D., Gonen, R., & Zeiri, Y. (2018). Early non-invasive detection of breast cancer using exhaled breath and urine analysis. *Computers in Biology and Medicine*, *96*, 227–232. https://doi.org/10.1016/j.compbiomed.2018.04.002

Jaffar, M. R., Amin, F., & Jamil, N. (2019). Self-breast examination awareness among female medical students: A study in Rawalpindi and Islamabad. *Pakistan Journal of Public Health*, 9(2), 43-48. https://doi.org/10.32413/pjph.v9i2.181

Jaffar, M. R., Amin, F., & Jamil, N. (2019). Self-breast examination awareness among female medical students: A study in Rawalpindi and Islamabad. *Pakistan Journal of Public Health*, 9(2), 43-48. https://doi.org/10.32413/pjph.v9i2.181

Muhammad, I.-U.-H., Shareef, U., & Arif, Z. (2022). Perspectives of Health Care Professionals and general Population regarding Tuberculosis in Pakistan: A Systematic Literature Review. *Pakistan Journal of Public Health*, *12*(1), 28–33. https://doi.org/10.32413/pjph.v12i1.914

Shaukat, U., Ismail, M., & Asim, M. (2021). Breast cancer statistics in Pakistan: A systematic review. *Journal of Cancer Epidemiology*, 2021, 1-10. https://doi.org/10.1155/2021/6454023

Sohail, S., & Alam, Q. (2022). Cultural perceptions and barriers to breast cancer screening among Pakistani women. *Asian Pacific Journal of Cancer Prevention*, 23(2), 489-496. https://doi.org/10.31557/APJCP.2022.23.2.489

Tariq, R., Khan, F., & Ahmad, M. (2020). The rising burden of breast cancer in Pakistan: A public health concern. *The Journal of Public Health*, 44(3), 24-31. https://doi.org/10.1016/j.pubheal.2020.02.015

Veljkovikj, I., Ilbawi, A., Roitberg, F., Luciani, S., Barango, P., Corbex, M. A., Dorji, G., Gunawardena, N., Johnson, S., Juric, A., Siewert, K., Saporiti, G., Nobile, M., Sauvaget, C., Vidanapathirana, J., Wright, B., Lishimpi, K., Kaidarova, D., Pomata, A., & Anne, M. (2022). Evolution of the joint International Atomic Energy Agency (IAEA), International Agency for Research on Cancer (IARC), and WHO cancer control assessments (imPACT Reviews). *Lancet Oncology*, *23*(10), e459–e468. https://doi.org/10.1016/s1470-2045(22)00387-4

Yousaf, R., Nasir, U., & Gul, M. (2019). Breast cancer screening in resource-limited settings: The importance of self-examination. *Pakistan Medical Journal*, 58(4), 295-298